



JJ1825.ST25.txt
SEQUENCE LISTING

<110> Kutchan, Toni M.
Zenk, Meinhardt H.
Atkins, David G.
Fist, Anthony J.

<120> CODEINONE REDUCTASE FROM ALKALOID POPPY

<130> JJ-1825

<140> US 09/937,665

<141> 2001-09-26

<150> PCT/AU00/00249

<151> 2000-03-24

<150> AU PP 9463

<151> 1999-03-26

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<170> PatentIn version 3.2

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<223> Synthetic Construct

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<213> Alfalfa

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20 25 30

Thr Arg Glu Glu Leu Phe Val Thr Ser Lys Leu Trp Val Thr Glu Asn
35 40 45

His Pro His Leu Val Ile Pro Ala Leu Gln Lys Ser Leu Lys Thr Leu
50 55 60

Gln Leu Asp Tyr Leu Asp Leu Tyr Leu Ile His Trp Pro Leu Ser Ser
65 70 75 80

Gln Pro Gly Lys Phe Ser Phe Pro Ile Asp Val Ala Asp Leu Leu Pro
85 90 95

Phe Asp Val Lys Gly Val Trp Glu Ser Met Glu Glu Ser Leu Lys Leu
100 105 110

Gly Leu Thr Lys Ala Ile Gly Val Ser Asn Phe Ser Val Lys Lys Leu
115 120 125

Glu Asn Leu Leu Ser Val Ala Thr Val Leu Pro Ala Val Asn Gln Val
130 135 140

Glu Met Asn Leu Ala Trp Gln Gln Lys Lys Leu Arg Glu Phe Cys Asn

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145              150              155              160

Ala Asn Gly Ile Val Leu Thr Ala Phe Ser Pro Leu Arg Lys Gly Ala
      165              170              175

Ser Arg Gly Pro Asn Glu Val Met Glu Asn Asp Met Leu Lys Glu Ile
      180              185              190

Ala Asp Ala His Gly Lys Ser Val Ala Gln Ile Ser Leu Arg Trp Leu
      195              200              205

Tyr Glu Gln Gly Val Thr Phe Val Pro Lys Ser Tyr Asp Lys Glu Arg
      210              215              220

Met Asn Gln Asn Leu Cys
225              230

<210> 17
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<213> Glycyrrh

<400> 17

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Thr Arg Glu Glu Leu Phe Val Thr Ser Lys Leu Trp Val Thr Glu Asn
      35      40      45

His Pro His Leu Val Ile Pro Ala Leu Arg Lys Ser Leu Glu Thr Leu
      50      55      60

Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Ile His Trp Pro Leu Ser Ser
      65      70      75      80

Gln Pro Gly Lys Phe Ser Phe Pro Ile Gln Val Glu Asp Leu Leu Pro
      85      90      95

Phe Asp Val Lys Gly Val Trp Glu Ser Met Glu Glu Cys Leu Lys Leu
      100     105     110

Gly Leu Thr Lys Ala Ile Gly Val Ser Asn Phe Ser Val Lys Lys Leu
      115     120     125

Gln Asn Leu Leu Ser Val Ala Thr Ile Arg Pro Ala Val Val Gln Val
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Glu Met Asn Leu Ala Trp Gln Gln Lys Lys Leu Arg Glu Phe Cys Thr
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Ala Asn Gly Ile Val Leu Thr Ala Phe Ser Pro Leu Arg Lys Gly Ala
165 170 175

Ser Arg Gly Pro Asn Glu Val Met Glu Asn Asp Met Leu Lys Gly Ile
180 185 190

Ala Glu Ala His Gly Lys Ser Ile Ala Gln Val Ser Leu Arg Trp Leu
195 200 205

Tyr Glu Gln Gly Val Thr Phe Val Ala Lys Ser Tyr Asp Lys Glu Arg
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Met Asn Gln Asn Leu Gln
225 230

<210> 18
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<212> PRT
<213> Soybean

<400> 18

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20 25 30

Arg Ser Gln Asp Leu Phe Val Thr Ser Lys Leu Trp Val Thr Glu Asn
35 40 45

His Pro His Leu Val Leu Pro Ala Leu Arg Lys Ser Leu Lys Thr Leu
50 55 60

Gln Leu Glu Tyr Leu Asp Leu Tyr Leu Ile His Trp Pro Leu Ser Ser
65 70 75 80

Gln Pro Gly Lys Phe Ser Phe Pro Ile Glu Val Glu Asp Leu Leu Pro
85 90 95

Phe Asp Val Lys Gly Val Trp Glu Ser Met Glu Glu Cys Gln Lys Leu
100 105 110

Gly Leu Thr Lys Ala Ile Gly Val Ser Asn Phe Ser Val Lys Lys Leu
115 120 125

Gln Asn Leu Leu Ser Val Ala Thr Ile Arg Pro Val Val Asp Gln Val
130 135 140

Glu Met Asn Leu Ala Trp Gln Gln Lys Lys Leu Arg Glu Phe Cys Lys
145 150 155 160

Glu Asn Gly Ile Ile Val Thr Ala Phe Ser Pro Leu Arg Lys Gly Ala
165 170 175

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Ser Arg Gly Pro Asn Glu Val Met Glu Asn Asp Val Leu Lys Glu Ile
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Ala Glu Ala His Gly Lys Ser Ile Ala Gln Val Ser Leu Arg Trp Leu
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 210 215 220

Met Asn Gln Asn Leu His
 225 230

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 <213> Opium poppy

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Ala Val Ala Arg Gly Lys Val Asn Glu Ile Pro Lys
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<213> *Papaver somniferum*

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<212> DNA

<213> Papaver somniferum

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